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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/569,179	02/22/2006	Johan Paul Marie Gerard Linnartz	NL031056	1994

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EXAMINER

HANNON, CHRISTIAN A

ART UNIT	PAPER NUMBER
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2618

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/569,179	Applicant(s) LINNARTZ, JOHAN PAUL MARIE GERARD	
	Examiner Christian A. Hannon	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 10-17 is/are rejected.
- 7) ☒ Claim(s) 5-9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/22/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 2/22/2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner is considering the information disclosure statement.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Regarding claim 16 the claimed invention is directed to non-statutory subject matter. The language "a computer program stored on a record carrier" renders the claim non-statutory. The examiner suggests changing the claim to read, "A computer readable medium encoded with a computer program" in order to circumvent the rejection.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1 rejected under 35 U.S.C. 102(e) as being clearly anticipated by Yoshida et al (US 2003/0053412), hereinafter Yoshida.

Regarding claim 1, Yoshida teaches a diversity receiver comprising a first receiving branch having associated thereto a first antenna element (receive branch 11-1, 12-1; Figure 7) and at least a second receiving branch having associated thereto a second antenna element (receive branch 11-3, 12-3; Figure 7), the diversity receiver comprising first means for obtaining from a first signal on the first receiving branch and a second signal on the second receiving branch a third signal representing an estimation of the spatial derivative, or average amount of phase shift, of at least one receiving channel parameter (Page 4, [0056]), wherein the third signal is used to cancel or at least reduce signal distortions that occur due to time-variations of the receiving channel (Page 4, [0057]).

Regarding claim 2, Yoshida teaches claim 1, wherein the first antenna element and the second antenna element are closely spaced and arranged behind each other in the direction of motion of the diversity receiver (Figure 7, Page 5, [0060]).

Regarding claim 3, Yoshida teaches claim 1, wherein the first means obtain the third signal as a difference between the first signal and the second signal (Page 4, [0053]; Page 5, [0061]).

Regarding claim 4, Yoshida teaches claim 1, wherein the third signal is interpreted as a temporal derivative of the at least one receiving channel parameter at least when the diversity receiver is moved (Page 4, [0057]). Yoshida teaches that the phase difference is considered constant momentarily at the instant in time the sample is received.

Regarding claim 10, Yoshida teaches claim 1, wherein the at least one receiving channel parameter is a receiving channel transfer function (Page 5, [0061]). Yoshida teaches that the channel parameter is that of a difference between received and transmitted phase, that is a relation between what was input to that of which was output, and thereby reads on the currently recited claim language.

Regarding claim 11, Yoshida teaches claim 1, wherein for creating a virtual third antenna element there are provided switching means for switching from a signal on the first receiving branch to a corresponding signal on the second receiving branch (Page 5, [0060]).

Regarding claim 12, Yoshida teaches claim 1, wherein the first antenna element and the second antenna element are arranged in parallel but extend in different directions (Figure 7, antennas 11-1, 11-3, directivities S-1 & S-3; Page 5, [0060]).

Regarding claim 13, Yoshida teaches claim 1, wherein the diversity receiver is adapted to be used in Orthogonal Frequency Division Multiplexing (OFDM) systems (Page 1, [0001]).

Regarding claim 14, Yoshida teaches the method for canceling or at least reducing signal distortions of a radio signal received by a moving diversity receiver especially a moving diversity receiver according to claim 1, wherein the signal distortions occur due to time-variations of a receiving channel in a radio system, said method comprising the following steps, receiving the radio signal at two closely spaced positions differing in the direction of motion (Figure 7, S1, S3, 11-1,11-3; Page 5, [0060]), estimating the spatial derivative, shift variation per symbol of at least one receiving channel parameter on the basis of the radio signal received at the two positions (Page 5, [0061]), interpreting the spatial derivative of the at least one receiving channel parameter as the temporal derivative, momentary fixed value, of the at least one receiving channel parameter (Page 4, [0057]) and exploit the temporal derivative of the at least one receiving channel parameter to cancel or at least reduce the signal distortions (Page 5, [0061]).

Regarding claim 15, Yoshida teaches the method of claim 14, wherein the step of estimating the spatial derivative comprises calculating a difference between the radio signal received at a first position of said two closely spaced positions and the radio signal received at a second position of said two closely spaced positions (Page 4, [0053-0054]; Page 5, [0061]).

Regarding claim 17, Yoshida teaches an antenna system for receiving a radio signal at at least two closely spaced positions different in the direction of motion, wherein the antenna system comprises at least a first antenna element and a second antenna element arranged such that the mutual interaction of the radio patterns is small (Figure 7, 11-1 & 11-3; Page 5, [0060]).

Regarding claim 16, Yoshida teaches the computer readable medium encoded with a computer program following the steps of estimating on the basis of a radio signal received at two closely spaced positions different in the direction of motion the spatial derivative of at least one receiving channel parameter (), interpreting the spatial derivative of the at least one receiving channel parameter as the temporal derivative of the at least one receiving channel parameter () and exploiting the temporal derivative of the at least one receiving channel parameter to cancel or at least reduce the signal distortions (Page 4, [0056-0057]; Page 5, [0060-61]; Page 10, [0116]).

Allowable Subject Matter

6. Claims 5-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 5, Yoshida teaches a means to adjust an output signal, however Yoshida cannot teach the exact architecture of the applicants claim such that it can be interpreted that Yoshida would teach a second means for processing the third signal to obtain a fourth signal, a third means for processing the first signal to obtain a fifth signal,

and fourth means for combining the fourth signal and the fifth signal to obtain an output signal.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Al-Dhahir et al (US 7,130,355) disclose amelioration in inter-carrier interference in OFDM.


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian A. Hannon whose telephone number is (571) 272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



C. A. Hannon
August 29, 2007



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